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corresponds to  $H$  in a similitude of ratio  $-1/3$ , the center of similitude being  $N$ .<sup>1</sup> But  $N$  is also the nine-point center of the triangle  $BCH$ , whose orthocenter is  $A$ , hence the centroid  $G_1$  of  $BCH$  corresponds to  $A$  in a similitude of ratio  $-1/3$  with  $N$  as center of similitude. Similarly for the centroids  $G_2, G_3$ , of the triangles  $CHA, HAB$ . Consequently: *The four centroids of an orthocentric group of triangles form an orthocentric group, the two groups being similar and similarly placed.*

8. Since the centroids  $G, G_1, G_2, G_3$ , form an orthocentric group, all the properties of such a group immediately follow, as, for instance, that  $G$  is the orthocenter of the triangle  $G_1G_2G_3$ , etc.

Again the similitude of the two groups  $GG_1G_2G_3$  and  $HABC$  puts into evidence a great many properties, as for instance, that  $G_1G_2$  is parallel to  $AB$  and is equal to  $1/3$  of its length; that the point of intersection of  $GG_1$  and  $G_2G_3$ , which will be represented by  $(GG_1, G_2G_3)$ , is collinear with  $N$  and  $D \equiv (HA, BC)$ ; etc. The reader may find it interesting to formulate a number of these propositions.

9. In the similitude (7) by which the group  $GG_1G_2G_3$  is derived from the group  $HABC$ , the center of similitude  $N$  is a double point. Hence: *An orthocentric group of triangles and the orthocentric group of their centroids have the same nine-point center.*

10. The orthocentric group  $GG_1G_2G_3$  has been derived from the given orthocentric group  $HABC$  by a similitude of center  $N$  and ratio  $-1/3$ . But the process may be reversed, and the orthocentric group  $HABC$  may be derived from the orthocentric group  $GG_1G_2G_3$ , considered as given, by a similitude of ratio  $-3$ , the center remaining the same. Consequently: *The four points of an orthocentric group may be considered as the centroids of another orthocentric group of triangles, the two groups having the same nine-point center, this point being a center of similitude of the two groups, the ratio of similitude being  $-3$ .*

11. Since from (1) the two groups  $HABC$  and  $OO_1O_2O_3$  are symmetrical about the center  $N$ , therefore it follows from (10) that the two groups  $GG_1G_2G_3$  and  $OO_1O_2O_3$  admit  $N$  as a center of similitude, the ratio of similitude being  $+3$ . Hence: *The centroids and the circumcenters of an orthocentric group of triangles form two orthocentric groups of points having the same nine-point center, this point being a center of similitude of these two groups, the ratio of similitude being  $+3$ .*

C. Maclaurin's *Geometria organica sive descriptio linearum curvarum universalis*, published at London—G. Poleni's *De mathesis in rebus physicis utilitate praelectio habita* . . ., published at Patavia—Second edition of L'Hospital's *Traité analytiques des sections coniques*, published at Paris—Alexandre Savérien, author of *Dictionnaire universel de mathématiques et de physique* (2 vols., Paris, 1753), born July 16.

<sup>1</sup> Euler, *Novi comment. acad. sc. Petrop.*, vol. 11 (1765), 1767, p. 114.—EDITOR.